

CLAIMS

1 1. Photometric analysis apparatus of the type which uses disk-shaped rotors,
2 characterized in that it has a device for loading the rotors (3) onto an analysis unit (5)
3 automatically, the device comprising a hopper (2) for supplying the rotors, the hopper
4 (2) comprising asymmetric means for locating the rotors (3) positively in the hopper.

1 2. Apparatus according to Claim 1, in which the asymmetric means for locating the
2 rotors positively comprise at least three ribs (23, 23', 24) arranged longitudinally on
3 the inner wall of the hopper (2), the ribs corresponding, respectively, to at least one
4 first notch, one second notch and one third notch (21, 21', 22) formed in the outer
5 edges of the rotors (3), the at least three ribs (23, 23', 24) being arranged
6 asymmetrically, that is, the circle arc included between a first rib (23) and a second
7 rib (24) having a length different from that of the circle arc included between the
8 second rib (24) and a third rib (23').

1 3. Apparatus according to Claim 2, in which the at least three ribs (23, 23', 24) have
2 shapes and sizes substantially corresponding, respectively, to the at least one first,
3 one second and one third notch (21, 21', 22) of the rotor (30).

1 4. Apparatus according to any one of Claims 1 to 3, in which the analysis unit (5)
2 comprises a hub (5b) for the rotor (3), clips (29, 29') projecting laterally from the
3 hub, and a push-button (31) which bears on a spring (32) acting on the clips (29, 29')
4 so that, if the push-button (31) is pressed, it causes the clips (29, 29') to be retracted
5 into the hub (5b) whereas, when the push-button (31) is released, the clips (29, 29')
6 project laterally again.

1 5. Apparatus according to any one of Claims 1 to 4, comprising a pincer (4) for
 2 transferring the rotor (3), the pincer being movable between a rotor pick-up position
 3 and the analysis unit (5), in which the pincer (4) comprises two claws (7' 7'')
 4 articulated movably and jointly on an arm (7), each claw (7', 7'') having a groove (11)
 5 for engaging the edges of the rotor (3), and teeth (11a) of a shape and size
 6 substantially corresponding to those of the at least one first and one second notch (21,
 7 21') of the rotor (3) being disposed in the grooves (11).

1 6. Apparatus according to Claim 5, in which the arm (7) comprises a tongue (8)
 2 which projects towards the centre of symmetry of the claws (7', 7''), a downwardly-
 3 facing finger (9) being disposed on the tongue (8) at the centre of symmetry, the
 4 finger (9) being intended to press the push-button (31) of the hub (5b).

1 7. Apparatus according to Claim 1, in which the asymmetric means for locating
 2 rotors positively comprise two ribs (23, 24) arranged longitudinally on the inner wall
 3 of the hopper (2) and corresponding, respectively, to two notches (21, 22) formed on
 4 the outer edges of the rotors (3), in which the ribs (23, 24) have different shapes, and
 5 in which the circle arc included between the ribs extends through an angle of less
 6 than 180°.

1 8. Apparatus according to any one of Claims 1 to 7, in which the hopper (2) has a
 2 device (25) for separating the rotors (3), the device comprising two pairs of pincers
 3 (26, 26', 27, 27') disposed one above the other on the walls of the hopper, the pincers
 4 being arranged in a manner such that, in the closed position, they project towards the
 5 interior of the hopper (2) whereas, in the open position, they are retracted into the
 6 walls of the hopper (2).

1 9. Apparatus according to any one of Claims 1 to 8, comprising a plate (6) movable
2 between a position aligned with the longitudinal axis of the hopper (2) and the
3 position for picking up the rotor (3), in which the plate (6) has, on its upper surface, a
4 plurality of triangular raised portions arranged radially around a pin (6').

1 10. Apparatus according to any one of Claims 1 to 9, in which electrical resistors for
2 thermally conditioning the rotors are disposed inside the hopper (2) and the plate (6).

1 11. A disk-shaped rotor (3) for photometric analysis apparatus having a plurality of
2 cuvettes (19) arranged radially on its lower surface and a central hole (20) for
3 engaging the hub (5b) of the analysis unit (5), characterized in that at least two
4 asymmetric locating notches are formed on the peripheral edge of the rotor (3) and
5 have shapes and positions such that it is not possible to identify a plane of symmetry
6 which is perpendicular to the plane in which the rotor lies and which extends through
7 the centre thereof.

1 12. A rotor according to Claim 11, on the edge of which a first notch, a second notch,
2 and a third notch (21, 21', 22) are formed, the third notch (22) being arranged in an
3 asymmetric position relative to the first and second notches (21, 21') so that the circle
4 arc included between the first notch (21) and the third notch (22) has a length
5 different from that of the circle arc included between the third notch (22) and the
6 second notch (21').

1 13. A rotor according to Claim 11, on the edge of which two notches (21, 22) are
2 formed, the notches being of different shapes and the circle arc included between the
3 two notches (21, 22) extending through an angle of less than 180°.

1 14. A rotor according to Claim 12, in which the first and second notches (21, 21') are
2 disposed at the ends of a diameter of the rotor (3).

1 15. A rotor according to Claim 12 or Claim 14, in which the at least one first notch
2 and the at least one second notch (21, 21') are V-shaped.

1 16. A rotor according to Claim 15, in which the V-shaped notches (21, 21') have one
2 side having a greater inclination than the other to the bisector of the angle formed
3 thereby so as to constitute a type of lead-in for the teeth (11a) during the picking-up
4 of the rotor by the pincer (4).

1 17. A rotor according to Claim 16, in which the at least one third notch (22) is
2 substantially trapezoidal.

1 18. A rotor according to any one of Claims 11 to 17, in which the central hole (20)
2 has at least one straight side.

1 19. A rotor according to Claim 18, in which the central hole (20) is polygonal.